

REMARKS/ARGUMENTS

Claim 34 is amended; claims 39, 40, and 48-91 are canceled; and claims 92-101 are new. Claims 34-38, 41-47, and 92-101 are now pending in the application. Applicants respectfully request reexamination and reconsideration of the application.

Claims 34-91 were rejected under the judicially created doctrine of obviousness-type double patenting in view of claims 1-19 of US Patent No. 6,741,085 to Khandros et al. ("Khandros"). In response, Applicants will file a terminal disclaimer but would prefer to do so after other issues of patentability are resolved.

Claims 34-38 and 41-48 were rejected under 35 USC § 103(a) as obvious in view of US Patent No. 5,635,846 to Beaman ("Beaman") alone or further in view of US Patent No. 5,672,978 to Kimura ("Kimura"). In addition, claims 63, 66-70, 81-86, and 91 were rejected under 35 USC § 102(e) as anticipated by, or in the alternative, under 35 USC § 103(a) as obvious in view of Beaman. Claims 63, 66, 67, 81-89, and 91 were rejected under 35 USC § 102(e) as anticipated by, or in the alternative, under 35 USC § 103(a) as obvious in view US Patent No. 5,691,650 to Sugai ("Sugai") alone or further in view of Beaman. Applicants respectfully traverse these rejections.

Independent claim 34 includes contact structures that are themselves "free standing" and "resilient." In contrast, Beaman's elongate conductors 42 (which the PTO equated with the contact structures of claim 34) are not themselves free standing or resilient. Beaman never describes the conductors 42 themselves (apart from elastomer material 40) as free standing or resilient. Indeed, the fact that Beaman requires that conductors 42 be encapsulated in an elastomer material 40 is evidence that conductors 42 are not themselves free standing or resilient. That is, the elastomer material 40 supports conductors 42, and consequently, the conductors 42 are not themselves free standing; and the elastomer material 40 provides any resilience, and consequently, the conductors 42 are not themselves resilient. If conductors 42 were freestanding and resilient, there would be no need to encapsulate conductors 42 in an elastomer material 40. Note that Beaman does not disclose a single embodiment in which conductors 42 are not encapsulated in elastomer material 40.

Moreover, foregoing difference between Beaman and claim 34 is not obvious because nothing in Beaman suggests making Beaman's elongate conductors 42 free standing and resilient and thus eliminating the need for elastomer material 40. In addition, it is well settled law that the

elimination of an element in the prior art while retaining its function is an indication of non-obviousness. (MPEP § 2144.04, section I.B (pg. 2100-145.) Thus, that the free standing, resilient characteristics of the contact structures of claim 34 dispense with the need for an elastomer encapsulate, which Beaman requires, while retaining the ability to make electrical connections with a semiconductor die to be tested is an indicia of non-obviousness of claim 34.

Claim 34 is thus patentable over Beaman. Kimura does not make up for the above-discussed deficiency in Beaman. Claim 34 is therefore also patentable over any combination of Beaman and Kimura.

Each of claims 35-38, 41-47, and 92-101 depend from claim 34 and are therefore also patentable over the prior art of record. Moreover, claims 35-38, 41-47, and 92-101 recite additional features that further distinguish over the prior art of record.

For example, claims 92 and 100 describe the contact structures as comprising over coated wires and state that the overcoat comprises a material that has a greater yield strength than the material of the wires. In rejecting former claim 48, the PTO stated that the elastomer material 40 of Beaman has a greater yield strength than elongate conductors 42. Nothing in Beaman, however, teaches or suggests that the elastomer material 40 has a greater yield strength than conductors 42. In fact, it is doubtful that an elastomer material, like 40 (see Beaman col. 7, lines 11-25), has a greater yield strength than metal wires (see Beaman column 5, lines 54-67). Nor is there any teaching in Beaman from column 5, line 54 through column 6, line 7 suggesting that the materials of the wires and the thin passivation layer plated onto the wires should be selected such that the passivation layer has greater yield strength than the wire. Nor is there any teaching in Beaman that suggests or would motivate a person of ordinary skill in the field to overcoat conductors 42 to tailor their resiliency. Therefore, Beaman does not render wires over coated with a material having a greater yield strength than the wires obvious.

As other examples, claim 93 states that "said contact structures are not encapsulated in an elastomer material," and claim 94 states that "said contact structures are not encapsulated in an encapsulate common to more than one of said contact structures." Beaman does not teach or suggest such features. Claims 93 and 94 are thus patentable over Beaman and the other prior art of record.

As another example, claim 101 states that "ones of said contact structures . . . are not attached directly to said first terminals." In contrast, Beaman's conductors 42 (which the PTO

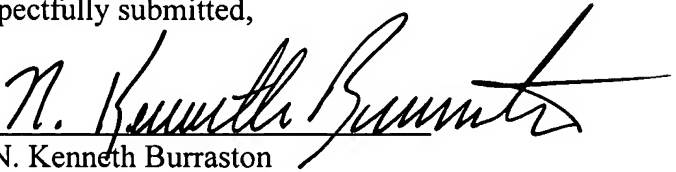
equated with the contact structures of the claims) are attached directly to pads 106 (which the PTO equated with the first terminals of the claim) of space transformer 60 (which the PTO equated with the second substrate of the claims). (See Beaman Figures 5-12.) Moreover, the foregoing distinction between Beaman and claim 101 is not a mere obvious variation. Nothing in Beaman suggests attaching conductors 42 to anything other than pads 106 of space transformer 60. Moreover, claim 34 has advantages not found in Beaman. For example, suppose that 1000 conductors 42 are to be attached to Beaman's space transformer 60 using Beaman's method of attaching the conductors 42 directly to pads 106. Using Beaman's process disclosed in Figures 7-12, if after successfully attaching 999 wires to pads 106, the attachment of the 1000th wire causes damage, the space transformer 60 along with the 999 successfully attached wires may need to be discarded. On the other hand, because the contact structures of claim 101 are attached directly to the first substrates, if the 1000th contact structure is unsuccessfully attached, only the one of the first substrates to which the 1000th contact structure is attached need be discarded. For example, an interconnection apparatus like that of claim 34 having 1000 contact structures could be made by attaching 100 contact structures to 10 first substrates, which are each attached to the second substrate. In such a case, if the attachment of the 1000th contact structure is unsuccessful, only the 10th first substrate with only the 99 contact structures attached to the 10th first substrate need be discarded. The other 9 first substrates along with the 900 contact structures attached to them need not be discarded. Claim 101 is thus more advantageous than Beaman. Claim 101 is thus patentable over Beaman and the other prior art of record.

In view of the foregoing, Applicants submit that all of the claims are allowable and the application is in condition for allowance. If the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 323-5934.

Respectfully submitted,

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